

IN THE CLAIMS:

Please amend the claims, as follows:

Claim 1. (Currently Amended): A ceramic passive component which comprises a carrier substrate (1),

at least one first electrode (2) formed of a material selected from the group consisting of metals and alloys and having a first surface disposed, directly on the substrate,

at least one thin film dielectric (5) of a thickness in the range of about 0.25-0.75 μm having a first surface disposed, on a second surface of the at least one first electrode opposing said first surface of the at least one first electrode, and

at least one second electrode (6) disposed on a second surface of the at least one dielectric opposing said first surface of the at least one dielectric,

wherein the at least one thin film dielectric (5) comprises a ferroelectric ceramic material with a voltage-dependent relative dielectric constant ϵ_r , and

wherein the ferroelectric ceramic material with a voltage-dependent dielectric constant ϵ_r is a material selected from the group consisting of:

$\text{Ba}_{1-x}\text{Sr}_x\text{TiO}_3$ (~~$0 \leq x \leq 1$~~) ($1 > x > 0.15$ and $0.15 > x \geq 0$), $\text{Pb}_{1-1.5y}\text{La}_y(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 0.2$), $\text{Pb}(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ ($0 \leq x \leq 1$) doped with Nb, $\text{Pb}_{1-\alpha y}\text{La}_y\text{TiO}_3$ ($0 \leq y \leq 0.3$, $1.3 \leq \alpha \leq 1.5$), $(\text{Pb}, \text{Ca})\text{TiO}_3$, BaTiO_3 with and without dopants, $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ (~~$0 \leq x \leq 1$~~) ($0 < x \leq 1$) with and without Mn dopants, $\text{BaZr}_x\text{Ti}_{1-x}\text{O}_3$ ($0 \leq x \leq 1$), SrTiO_3 doped with, for example, La, Nb, Fe or Mn,

$(\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3)_x(\text{PbTiO}_3)_{1-x}$ ($0 \leq x \leq 1$)

$(\text{Pb}, \text{Ba}, \text{Sr})(\text{Mg}_{1/3}\text{Nb}_{2/3})_x\text{Ti}_y(\text{Zn}_{1/3}\text{Nb}_{2/3})_{1-x-y}\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 1$, $x + y \leq 1$), $\text{PbNb}_{4/5x}((\text{Zr}_{0.6}\text{Sn}_{0.4})_{1-y}\text{Ti}_y)_{1-x}\text{O}_3$ ($0 \leq x \leq 0.9$, $0 \leq y \leq 1$),

$(\text{Ba}_{1-x}\text{Ca}_x)\text{TiO}_3$ ($0 \leq x \leq 1$),

$(\text{Ba}_{1-x}\text{Sr}_x)\text{TiO}_3$ (~~$0 \leq x \leq 1$~~) ($1 > x > 0.15$ and $0.15 > x \geq 0$), $(\text{Ba}_{1-x}\text{Pb}_x)\text{TiO}_3$ ($0 \leq x \leq 1$), $(\text{Ba}_{1-x}\text{Sr}_x)(\text{Ti}_{1-x}\text{Zr}_x)\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 1$)

- (a) $\text{Pb}(\text{Mg}_{1/2}\text{W}_{1/2})\text{O}_3$,
- (b) $\text{Pb}(\text{Fe}_{1/2}\text{Nb}_{1/2})\text{O}_3$,
- (c) $\text{Pb}(\text{Fe}_{2/3}\text{W}_{1/3})\text{O}_3$,
- (d) $\text{Pb}(\text{Ni}_{1/3}\text{Nb}_{2/3})\text{O}_3$,
- (e) $\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$
- (f) $\text{Pb}(\text{Sc}_{1/2}\text{Ta}_{1/2})\text{O}_3$,

as well as combinations of any of the materials (a) to (f) with PbTiO_3 and $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ with and without excess lead.

Claim 2. (Cancelled)

Claim 3. (Previously presented) A ceramic passive component as claimed in claim 1, wherein the at least one first electrode (2) or the at least one second electrode (6) comprise(s) at least a first and a second electrically conducting layer.

Claim 4. (Previously presented) A ceramic passive component as claimed in claim 3, wherein the first electrically conducting layer of the at least first electrode(2) or of the at least one second electrode (6) comprises Ti, Cr, Ni_xCr_y ($0 \leq x \leq 1$, $0 \leq y \leq 1$) or Ti_xW_y ($0 \leq x \leq 1$, $0 \leq y \leq 1$).

Claim 5. (Previously presented) A ceramic passive component as claimed in claim 3, wherein the second electrically conducting layer of the at least one first electrode (2) or of the at least one second electrode (6) comprises a metal or an alloy.

Claim 6. (Previously presented) A ceramic passive component as claimed in claim 1, wherein the carrier substrate (1) comprises a ceramic material, a ceramic material with a glass planarization layer, a glass-ceramic material, a glass material, or silicon.

Claim 7. (Previously presented) A ceramic passive component as claimed in claim 1, wherein the at least one dielectric (5) comprises multiple layers.

Claim 8. (Previously presented) A ceramic passive component as claimed in claim 1, wherein a protective layer (7) is laid over the entire component.

Claim 9. (Currently amended) A voltage-controlled oscillator comprising a capacitive component comprising a ceramic passive component which comprises a carrier substrate (1), at least one first electrode (2) formed of a material selected from the group consisting of metals and alloys and having a first surface disposed directly on the substrate, at least one thin film dielectric (5) of a thickness in the range of about 0.25-0.75 μ m having a first surface disposed, on a second surface, opposed to said first surface of the at least first electrode, and at least a second electrode (6) disposed on a second surface of the at least one thin film dielectric, opposed to said first surface of the at least one dielectric, wherein the at least on thin film dielectric (5) comprises a ferroelectric ceramic material with a voltage-dependent relative dielectric constant ϵ_r , wherein said capacitive component is mounted with other components of said voltage-controlled oscillator and said ferroelectric ceramic material is selected from the group consisting of:

$Ba_{1-x}Sr_xTiO_3$ ($1 > x > 0.15$ and $0.15 > x \geq 0$), $Pb_{1-1.5y}La_y(Zr_xTi_{1-x})O_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 0.2$), $Pb(Zr_xTi_{1-x})O_3$ ($0 \leq x \leq 1$) doped with Nb, $Pb_{1-\alpha y}La_yTiO_3$ ($0 \leq y \leq 0.3$, $1.3 \leq \alpha \leq 1.5$), (Pb, Ca) TiO_3 , $BaTiO_3$ with and without dopants, $SrZr_xTi_{1-x}O_3$ ($0 \leq x \leq 1$) with and without Mn dopants, $BaZr_xTi_{1-x}O_3$ ($0 \leq x \leq 1$), $SrTiO_3$ doped with, for example, La, Nb, Fe or Mn,

$(Pb(Mg_{1/3}Nb_{2/3})O_3)_x(PbTiO_3)_{1-x}$ ($0 \leq x \leq 1$)

$(Pb, Ba, Sr)(Mg_{1/3}Nb_{2/3})_xTi_y(Zn_{1/3}Nb_{2/3})_{1-x-y}O_3$ ($0 \leq x \leq 1$, $0 < y \leq 1$, $x + y \leq 1$),

$PbNb_{4/5x}((Zr_{0.6}Sn_{0.4})_{1-y}Ti_y)_{1-x}O_3$ ($0 \leq x \leq 0.9$, $0 \leq y \leq 1$),

$(Ba_{1-x}Ca_x)TiO_3$ ($0 \leq x \leq 1$),

$(Ba_{1-x}Sr_x)TiO_3$ ($1 > x > 0.15$ and $0.15 > x \geq 0$), $(Ba_{1-x}Pb_x)TiO_3$ ($0 \leq x \leq 1$), $(Ba_{1-x}Sr_x)(Ti_{1-x}Zr_x)O_3$ ($0 \leq x \leq 1$, $0 < y \leq 1$)

(a) $\text{Pb}(\text{Mg}_{1/2}\text{W}_{1/2})\text{O}_3$.

(b) $\text{Pb}(\text{Fe}_{1/2}\text{Nb}_{1/2})\text{O}_3$.

(c) $\text{Pb}(\text{Fe}_{2/3}\text{W}_{1/3})\text{O}_3$.

(d) $\text{Pb}(\text{Ni}_{1/3}\text{Nb}_{2/3})\text{O}_3$.

(e) $\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$.

(f) $\text{Pb}(\text{Sc}_{1/2}\text{Ta}_{1/2})\text{O}_3$.

as well as combinations of any of the materials (a) to (f) with PbTiO_3 and $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ with and without excess lead.

Claim 10. (Currently amended) A filter comprising a capacitive component comprising a ceramic passive component which comprises a carrier substrate (1), at least one first electrode (2) formed of a material selected from the group consisting of metals and alloys and having a first surface disposed directly on the substrate, at least one thin film dielectric (5) of a thickness in the range of about 0.25-0.75 μm having a first surface disposed on a second surface of the at least one first electrode (2) opposed to the first surface and at least one second electrode having a surface disposed on said second surface of the at least one thin film dielectric wherein the at least one thin film dielectric (5) comprises a ferroelectric ceramic material with a voltage-dependent relative dielectric constant ϵ_r , wherein said capacitive component is mounted with other components of said filter and said ferroelectric ceramic material is selected from the group consisting of:

$\text{Ba}_{1-x}\text{Sr}_x\text{TiO}_3$ ($1 > x > 0.15$ and $0.15 > x > 0$), $\text{Pb}_{1-1.5y}\text{La}_y(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 0.2$), $\text{Pb}(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ ($0 \leq x \leq 1$) doped with Nb, $\text{Pb}_{1-\alpha y}\text{La}_y\text{TiO}_3$ ($0 < y < 0.3$, $1.3 \leq \alpha \leq 1.5$), $(\text{Pb}, \text{Ca})\text{TiO}_3$, BaTiO_3 with and without dopants, $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ ($0 < x \leq 1$) with and without Mn dopants, $\text{BaZr}_x\text{Ti}_{1-x}\text{O}_3$ ($0 \leq x \leq 1$), SrTiO_3 doped with, for example, La, Nb, Fe or Mn.

$(\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3)_x(\text{PbTiO}_3)_{1-x}$ ($0 \leq x \leq 1$)

$(\text{Pb}, \text{Ba}, \text{Sr})(\text{Mg}_{1/3}\text{Nb}_{2/3})_x\text{Ti}_y(\text{Zn}_{1/3}\text{Nb}_{2/3})_{1-x-y}\text{O}_3$ ($0 \leq x \leq 1$, $0 < y < 1$, $x + y \leq 1$), $\text{PbNb}_{4/5x}(\text{Zr}_{0.6}\text{Sn}_{0.4})_{1-y}\text{Ti}_y)_{1-x}\text{O}_3$ ($0 \leq x \leq 0.9$, $0 \leq y \leq 1$).

$(\text{Ba}_{1-x}\text{Ca}_x)\text{TiO}_3$ ($0 \leq x \leq 1$).

$(\text{Ba}_{1-x}\text{Sr}_x)\text{TiO}_3$ ($1 > x > 0.15$ and $0.15 > x \geq 0$), $(\text{Ba}_{1-x}\text{Pb}_x)\text{TiO}_3$ ($0 < x \leq 1$), $(\text{Ba}_{1-x}\text{Sr}_x)(\text{Ti}_{1-x}\text{Zr}_x)\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 1$)

(a) Pb (Mg_{1/2}W_{1/2})O₃.

(b) Pb (Fe_{1/2}Nb_{1/2})O₃.

(c) Pb (Fe_{2/3}W_{1/3})O₃.

(d) Pb (Ni_{1/3}Nb_{2/3})O₃.

(e) Pb (Zn_{1/3}Nb_{2/3})O₃.

(f) Pb (Sc_{1/2}Ta_{1/2})O₃.

as well as combinations of any of the materials (a) to (f) with PbTiO₃ and Pb (Mg_{1/3}Nb_{2/3})O₃ with and without excess lead.

Claim 11. (Currently amended) A delay line comprising a capacitive component comprising a ceramic passive component which comprises a carrier substrate (1), at least one first electrode formed of a material selected from the group consisting of metal and alloys and (2) having a first surface disposed directly on the substrate at least one thin film dielectric (5) of a thickness in the range of about 0.25-0.75 μ m having a first surface disposed on a second surface of the at least one first electrode opposed to said first surface and at least one second electrode (6) having a surface disposed on said second surface of the at least one thin film dielectric wherein the at least one thin film dielectric (5) comprises a ferroelectric ceramic material with a voltage-dependent relative dielectric constant ϵ_r , wherein said capacitive component is mounted with other components of said delay line and said ferroelectric ceramic material is selected from the group consisting of:

Ba_{1-x}Sr_xTiO₃ (1 > x > 0.15 and 0.15 > x \geq 0), Pb_{1-1.5y}La_y(Zr_xTi_{1-x})O₃ (0 \leq x \leq 1, 0 \leq y < 0.2), Pb(Zr_xTi_{1-x})O₃ (0 \leq x \leq 1) doped with Nb, Pb_{1- α y}La_yTiO₃ (0 \leq y < 0.3, 1.3 \leq α \leq 1.5), (Pb, Ca) TiO₃, BaTiO₃ with and without dopants, SrZr_xTi_{1-x}O₃ (0 < x \leq 1) with and without Mn dopants, BaZr_xTi_{1-x}O₃ (0 \leq x < 1), SrTiO₃ doped with, for example, La, Nb, Fe or Mn,

(Pb(Mg_{1/3}Nb_{2/3})O₃)_x(PbTiO₃)_{1-x} (0 \leq x \leq 1)

(Pb, Ba, Sr) (Mg_{1/3}Nb_{2/3})_xTi_y(Zn_{1/3}Nb_{2/3})_{1-x-y}O₃ (0 \leq x \leq 1, 0 \leq y < 1, x + y \leq 1),

PbNb_{4/5x}((Zr_{0.6}Sn_{0.4})_{1-y}Ti_y)_{1-x}O₃ (0 \leq x < 0.9, 0 \leq y \leq 1),

(Ba_{1-x}Ca_x)TiO₃ (0 \leq x \leq 1),

$(\text{Ba}_{1-x}\text{Sr}_x)\text{TiO}_3$ ($1 > x > 0.15$ and $0.15 > x \geq 0$), $(\text{Ba}_{1-x}\text{Pb}_x)\text{TiO}_3$ ($0 < x \leq 1$), $(\text{Ba}_{1-x}\text{Sr}_x)(\text{Ti}_{1-x}\text{Zr}_x)\text{O}_3$ ($0 < x < 1$, $0 < y \leq 1$)

(a) $\text{Pb}(\text{Mg}_{1/2}\text{W}_{1/2})\text{O}_3$.

(b) $\text{Pb}(\text{Fe}_{1/2}\text{Nb}_{1/2})\text{O}_3$.

(c) $\text{Pb}(\text{Fe}_{2/3}\text{W}_{1/3})\text{O}_3$.

(d) $\text{Pb}(\text{Ni}_{1/3}\text{Nb}_{2/3})\text{O}_3$.

(e) $\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$

(f) $\text{Pb}(\text{Sc}_{1/2}\text{Ta}_{1/2})\text{O}_3$.

as well as combinations of any of the materials (a) to (f) with PbTiO_3 and $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ with and without excess lead..

Claim 12. (Currently amended) A component with a tunable capacitance comprising:

a capacitive ceramic comprising a carrier substrate (1), at least one first electrode (2) formed of a material selected from the group consisting of metals and alloys and having a first surface disposed directly on the substrate, at least one dielectric (5) of a thickness in the range of about 0.25-0.75 μm with a voltage-dependent relative dielectric constant ϵ_r , having a second surface opposed to said first surface disposed on a second surface of the at least one first electrode opposed to said first surface and at least one second electrode (6) disposed on said second surface of the at least one thin film dielectric as a capacitive component, wherein said capacitive ceramic is mounted with other components of said component with a tunable capacitance and said ferroelectric ceramic material is selected from the group consisting of:

$\text{Ba}_{1-x}\text{Sr}_x\text{TiO}_3$ ($1 > x > 0.15$ and $0.15 > x \geq 0$), $\text{Pb}_{1-1.5y}\text{La}_y(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 0.2$), $\text{Pb}(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ ($0 \leq x \leq 1$) doped with Nb, $\text{Pb}_{1-\alpha y}\text{La}_y\text{TiO}_3$ ($0 \leq y < 0.3$, $1.3 \leq \alpha \leq 1.5$), $(\text{Pb}, \text{Ca})\text{TiO}_3$, BaTiO_3 with and without dopants, $\text{SrZr}_x\text{Ti}_{1-x}\text{O}_3$ ($0 < x \leq 1$) with and without Mn dopants, $\text{BaZr}_x\text{Ti}_{1-x}\text{O}_3$ ($0 \leq x \leq 1$), SrTiO_3 doped with, for example, La, Nb, Fe or Mn.

$(\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3)_x(\text{PbTiO}_3)_{1-x}$ ($0 \leq x \leq 1$)

$(\text{Pb}, \text{Ba}, \text{Sr})(\text{Mg}_{1/3}\text{Nb}_{2/3})_x\text{Ti}_y(\text{Zn}_{1/3}\text{Nb}_{2/3})_{1-x-y}\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 1$, $x+y \leq 1$).

$\text{PbNb}_{4/5}\text{x}((\text{Zr}_{0.6}\text{Sn}_{0.4})_{1-y}\text{Ti}_y)_{1-x}\text{O}_3$ ($0 \leq x \leq 0.9$, $0 \leq y \leq 1$).

$(\text{Ba}_{1-x}\text{Ca}_x)\text{TiO}_3$ ($0 < x < 1$).

$(\text{Ba}_{1-x}\text{Sr}_x)\text{TiO}_3$ ($1 > x > 0.15$ and $0.15 > x > 0$), $(\text{Ba}_{1-x}\text{Pb}_x)\text{TiO}_3$ ($0 < x \leq 1$), $(\text{Ba}_{1-x}\text{Sr}_x)(\text{Ti}_{1-x}\text{Zr}_x)\text{O}_3$ ($0 \leq x \leq 1$, $0 \leq y \leq 1$)

(a) $\text{Pb}(\text{Mg}_{1/2}\text{W}_{1/2})\text{O}_3$.

(b) $\text{Pb}(\text{Fe}_{1/2}\text{Nb}_{1/2})\text{O}_3$.

(c) $\text{Pb}(\text{Fe}_{2/3}\text{W}_{1/3})\text{O}_3$.

(d) $\text{Pb}(\text{Ni}_{1/3}\text{Nb}_{2/3})\text{O}_3$.

(e) $\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$.

(f) $\text{Pb}(\text{Sc}_{1/2}\text{Ta}_{1/2})\text{O}_3$.

as well as combinations of any of the materials (a) to (f) with PbTiO_3 and $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ with and without excess lead.